

measurements of a plurality of cellular constituents of a living cell or organism in response to a perturbation to said living cell or organism, each of said one or more artifacts comprising an artifact pattern comprising measurements of changes in said cellular constituents resulting from deviation of one or more experimental variables from desired values, said method comprising subtracting said one or more artifact patterns from the measured biological response profile, thereby removing said one or more artifacts from said measured biological response profile.

59. (Three Times Amended) The method of claim 58, wherein each of the one or more artifact patterns comprises measurements of amplitudes of said changes in said cellular constituents associated with the artifact to which the artifact pattern corresponds.

71. (Three Times Amended) A method for removing one or more artifacts from a measured biological response profile, said measured biological response profile comprising measurements of a plurality of cellular constituents of a living cell or organism in response to a perturbation to said living cell or organism, each of said one or more artifacts comprising measurements of changes in said cellular constituents resulting from deviation of one or more experimental variables from desired values, said method comprising subtracting an artifact template from the measured biological response profile, wherein said artifact template comprises an artifact signature having greatest similarity to said biological response profile and is obtained by a method comprising comparing said measured biological response profile to a library of artifact signatures, each of said artifact signatures comprising measurements of amplitudes of said changes in said cellular constituents corresponding to different levels of said one or more experimental variables, said comparing comprising pattern matching of said measured biological response profile against said library; thereby removing said one or more artifacts from said measured biological response profile.

72. (Three Times Amended) A method for removing one or more artifacts from a measured biological response profile, said measured biological response profile comprising measurements of a plurality of cellular constituents of a living cell or organism in response to a perturbation to said living cell or organism, each of said one or more artifacts comprising